

**I. Status of the Claims**

Claims 1-17 and 19 are pending. Claim 18 has been previously cancelled.

Claims 1-17 and 19 stand rejected. By this amendment, all pending claims have been amended to particularly point out and more distinctly recite the claimed subject matter. Support for the amended independent claims 1 and 14 can be found, for example, in Figures 1 and 2, as well as at pages 6-7 of the as-filed specification. No new matter has been added. Applicant requests the prompt reconsideration in view of the amendments and allowance of this application.

**II. Rejection Under 35 U.S.C. § 103(a)**

The Examiner rejected claims 1-17 and 19 under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent No. 3,761,316 to Stedman ("Stedman") in view of U.S. Patent Application Serial No. 20010033956 to Appleby et al. ("Appleby") for the reasons disclosed on pages 2-6 of the Office Action dated August 8, 2007 (Office Action). Applicant respectfully traverses the rejection.

**Claim 1**

Stedman discloses a fuel cell assembly that removes heat generated in the fuel cell by a liquid coolant. However, differing from the claimed invention, the liquid coolant in Stedman is separated from and does not enter either the anode or the cathode compartment of the fuel cell.

As shown in the only figure in Stedman, the fuel cell assembly comprises fuel cells 2 and 38. See Stedman, col. 2, lines 40-58; col. 2, line 67 - col. 3, line 8; and Figure. The anode compartment 50 of fuel cell 38 is defined by the end plated 46 and pins 48. *Id.* Its cathode compartment 49 is defined by plate 40 and pins 44. *Id.*

Similarly, the anode compartment 10 of fuel cell 2 is defined by plate 14 and pins 16. *Id.* Its cathode compartment 18 is defined by the end plate 24 and pins 26. *Id.* The cooling cell has a hydrophobic separator 27 interposed between plates 14 and 40. *Id.* Pins 28 and 42 in combination of the separator 27 create cavities that the liquid coolant flows through. *Id.* Note that plates 14 and 40 are solid plates that separates the cooling cell from the adjacent anode compartment 10 and the cathode compartment 49 respectively. See Figure in Stedman. Consequently, the liquid coolant permeates from one side of separator 27 to the other side without entering either the adjacent anode compartment 10 or the cathode compartment 49. *Id.* Therefore, Stedman does not teach a cooling cell “separated from said cathode compartment or said anode compartment of said at least one membrane fuel cell by a porous wall,” nor does it teach that “liquid water passes from said at least one cooling cell to said anode or cathode compartment of said at least one membrane fuel cell across the porous wall,” as recited in claim 1, as amended.

Appleby does not cure the defects. In Appleby, the cooling cell 13 is separated from the fuel cell anode or cathode compartments by “impervious electronically-conducting plates or gas barrier 12.” See Appleby, col. 9, paragraph [0112] and Figure 3. Therefore, the coolant in the cooling cell does not enter the anode or the cathode compartment in the fuel cell, as recited in claim 1, as amended.

#### Claim 14

Claim 14, as amended, recited the step of “allowing said [cooling] water flow to permeate from said at least one cooling cell to said adjacent anode or cathode

compartment in said at least one membrane fuel cell across said porous wall and humidifies the gaseous reactant therein."

For at least the reasons set forth above, the liquid coolant or its vapor in Stedman or in Appleby does not enter either the anode compartment or the cathode compartment in the adjacent fuel cell. Nor does the coolant humidify the reactant gases in these compartments.

To summarize, Stedman and Appleby, alone or in combination, do not disclose a fuel cell assembly wherein the cooling water enters the anode or the cathode compartment and do not teach all elements in the claims 1-17 and 19. Applicant additionally submits that one skilled in the art, after consideration of Stedman and Appleby as a whole, would not have derived the claimed invention from reading the disclosures in Stedman and Appleby.

### III. Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.



Dated: December 7, 2007

By: \_\_\_\_\_

Mark D. Sweet  
Reg. No. 41,469